

**AMENDMENTS TO THE CLAIMS**

**Claim 1 (withdrawn): DNA encoding a tumor antigen-derived gene (TADG-15) protein, selected from the group consisting of:**

- (a) isolated DNA which encodes a TADG-15 protein;**
- (b) isolated DNA which hybridizes under high stringency conditions to the isolated DNA of (a) above and which encodes a TADG-15 protein; and**
- (c) isolated DNA differing from the isolated DNAs of (a) and (b) above in codon sequence due to the degeneracy of the genetic code, and which encodes a TADG-15 protein.**

**Claim 2 (withdrawn): The DNA of claim 1, wherein said DNA has the sequence shown in SEQ ID No.1.**

**Claim 3 (withdrawn): The DNA of claim 1, wherein said TADG-15 protein has the amino acid sequence shown in SEQ ID No. 2.**

**Claim 4 (withdrawn): A vector comprising the DNA of claim 1 and regulatory elements necessary for expression of said DNA in a cell.**

**Claim 5 (withdrawn): The vector of claim 4, wherein said DNA encodes a TADG-15 protein having the amino acid sequence shown in SEQ ID No. 2.**

**Claim 6 (withdrawn):** The vector of claim 4, wherein said DNA is positioned in reverse orientation relative to said regulatory elements such that TADG-15 antisense mRNA is produced.

**Claim 7 (withdrawn):** A host cell transfected with the vector of claim 4, said vector expressing a TADG-15 protein.

**Claim 8 (withdrawn):** The host cell of claim 7, wherein said cell is selected from the group consisting of bacterial cells, mammalian cells, plant cells and insect cells.

**Claim 9 (withdrawn):** The host cell of claim 8, wherein said bacterial cell is *E.coli*.

**Claim 10 (withdrawn):** Isolated and purified TADG-15 protein coded for by DNA selected from the group consisting of:

- (a) isolated DNA which encodes a TADG-15 protein;
- (b) isolated DNA which hybridizes under high stringency conditions to the isolated DNA of (a) above and which encodes a TADG-15 protein; and
- (c) isolated DNA differing from the isolated DNAs of (a) and (b) above in codon sequence due to the degeneracy of the genetic code, and which encodes a TADG-15 protein.

**Claim 11 (withdrawn):** The TADG-15 protein of claim 10, wherein said protein has the amino acid sequence shown in SEQ ID No. 2.

**Claim 12 (currently amended):** A method for detecting TADG-15 mRNA in a sample, comprising the steps of:

- (a) contacting a sample with a probe, wherein said probe is specific for TADG-15 mRNA transcribed from encoded by SEQ ID NO: 1; and
- (b) detecting binding of said probe to said TADG-15 mRNA in said sample.

**Claim 13 (original):** The method of claim 12, wherein said sample is a biological sample.

**Claim 14 (original):** The method of claim 13, wherein said biological sample is from an individual.

**Claim 15 (original):** The method of claim 14, wherein said individual is suspected of having cancer.

**Claim 16 (currently amended):** A kit for detecting TADG-15 mRNA, comprising:

an oligonucleotide probe, wherein said probe is specific for TADG-15 mRNA transcribed from encoded by SEQ ID NO: 1.

Claim 17 (currently amended): The kit of claim 16, further comprising:

a label with which to label said probe; and  
~~means for detecting said label.~~

Claim 18 (withdrawn): A method of detecting TADG-15 protein in a sample, comprising the steps of:

(a) contacting a sample with an antibody, wherein said antibody is specific for TADG-15 or a fragment thereof; and  
(b) detecting binding of said antibody to TADG-15 protein in said sample.

Claim 19 (withdrawn): The method of claim 18, wherein said sample is a biological sample.

Claim 20 (withdrawn): The method of claim 19, wherein said biological sample is from an individual.

Claim 21 (withdrawn): The method of claim 20, wherein said individual is suspected of having cancer.

Claim 22 (withdrawn): A kit for detecting TADG-15 protein, comprising:

an antibody, wherein said antibody is specific for TADG-15 protein or a fragment thereof.

Claim 23 (withdrawn): The kit of claim 22, further comprising:  
means to detect said antibody.

Claim 24 (withdrawn): An antibody, wherein said antibody is specific for TADG-15 protein or a fragment thereof.

Claim 25 (withdrawn): A method of screening for compounds that inhibit TADG-15, comprising the steps of:

(a) contacting a sample with a compound, wherein said sample comprises TADG-15 protein; and

(b) assaying for TADG-15 protease activity, wherein a decrease in said TADG-15 protease activity in the presence of said compound relative to TADG-15 protease activity in the absence of said compound is indicative of a compound that inhibits TADG-15.

Claim 26 (withdrawn): A method of inhibiting expression of TADG-15 in a cell, comprising the step of introducing the vector of claim 6 into a cell,

wherein expression of said vector produces TADG-15 antisense mRNA in said cell, wherein said TADG-15 antisense mRNA hybridizes to endogenous TADG-15 mRNA, thereby inhibiting expression of TADG-15 in said cell.

Claim 28 (withdrawn): A method of targeted therapy to an individual, comprising the step of:

(a) administering a compound to an individual, wherein said compound has a targeting moiety and a therapeutic moiety, wherein said targeting moiety is specific for TADG-15.

Claim 29 (withdrawn): The method of claim 28, wherein said targeting moiety is selected from the group consisting of an antibody specific for TADG-15 and a ligand or ligand binding domain that binds TADG-15.

Claim 30 (withdrawn): The method of claim 28, wherein said therapeutic moiety is selected from the group consisting of a radioisotope, a toxin, a chemotherapeutic agent, an immune stimulant and a cytotoxic agent.

Claim 31 (withdrawn): The method of claim 28, wherein said individual suffers from ovarian cancer, lung cancer, prostate cancer, colon cancer and other cancers in which TADG-15 is overexpressed.

Claim 32 (currently amended): A method of diagnosing cancer in an individual, comprising the steps of:

- (a) obtaining a biological sample from an individual;
- (b) detecting TADG-15 DNA of SEQ ID NO: 1 or TADG-15 mRNA transcribed from said TADG-15 DNA in said sample, wherein presence of said TADG-15 DNA or said TADG-15 mRNA in said sample is indicative of the presence of carcinoma in said individual, wherein the absence of said TADG-15 DNA or said TADG-15 mRNA in said sample is indicative of the absence of carcinoma in said individual.

Claim 33 (original): The method of claim 32, wherein said biological sample is selected from the group consisting of blood, urine, saliva, tears, interstitial fluid, tumor tissue biopsy and circulating tumor cells.

Claim 34 (currently amended): The method of claim 32, wherein said detection of said TADG-15 DNA or said TADG-15 mRNA is by means selected from the group consisting of Northern blot, RT-PCR and DNA array chips.

Claim 35 (original): The method of claim 32, wherein said carcinoma is selected from the group consisting of ovarian, breast, lung, colon, prostate and others in which TADG-15 is overexpressed.

Claim 36 (withdrawn): A method of vaccinating an individual against TADG-15, comprising the steps of:

Inoculating an individual with a TADG-15 protein or a fragment thereof, wherein said TADG-15 protein or fragment thereof lacks TADG-15 protease activity, wherein said inoculation with said TADG-15 protein or fragment thereof elicits an immune response in said individual, thereby vaccinating said individual against TADG-15.

Claim 37 (withdrawn): The method of claim 36, wherein said individual has cancer, is suspected of having cancer or is at risk of getting cancer.

Claim 38 (withdrawn): The method of claim 36, wherein said TADG-15 fragment is selected from the group consisting of a 9-residue fragment up to a 20-residue fragment.

Claim 39 (withdrawn): The method of claim 38, wherein said 9-residue fragment is selected from the group consisting of SEQ ID Nos. 2, 19, 20, 21, 29, 39, 49, 50, 59, 79, 80, 81, 82, 83, 84, 89 and 90.

Claim 40 (withdrawn): A method of producing immune-activated cells directed toward TADG-15, comprising the steps of:

exposing dendritic cells to a TADG-15 protein or fragment thereof, wherein said TADG-15 protein or fragment thereof lacks TADG-15 protease activity, wherein said exposure to said TADG-15 protein or fragment thereof activates said dendritic cells, thereby producing immune-activated cells directed toward TADG-15.

**Claim 41 (withdrawn):** The method of claim 40, wherein said immune-activated cells are selected from the group consisting of B-cells, T-cells and dendrites.

**Claim 42 (withdrawn):** The method of claim 40, wherein said TADG-15 fragment is selected from the group consisting of a 9-residue fragment up to a 20-residue fragment.

**Claim 43 (withdrawn):** The method of claim 42, wherein said 9-residue fragment is selected from the group consisting of SEQ ID Nos. 2, 19, 20, 21, 29, 39, 49, 50, 59, 79, 80, 81, 82, 83, 84, 89 and 90.

**Claim 44 (withdrawn):** The method of claim 40, wherein said dendritic cells are isolated from the individual prior to said exposure, wherein said activated dendritic cells are reintroduced into said individual subsequent to said exposure.

Claim 45 (withdrawn): The method of claim 44, wherein said individual has cancer, is suspected of having cancer or is at risk of getting cancer.

Claim 46 (withdrawn): An immunogenic composition, comprising an immunogenic fragment of a TADG-15 protein and an appropriate adjuvant.

Claim 47 (withdrawn): The immunogenic composition of claim 48, wherein said fragment is selected from the group consisting of a 9-residue fragment up to a 20-residue fragment.

Claim 48 (withdrawn): The immunogenic composition of claim 47, wherein said 9-residue fragment is selected from the group consisting of SEQ ID Nos. 2, 19, 20, 21, 29, 39, 49, 50, 59, 79, 80, 81, 82, 83, 84, 89 and 90.

Claim 49 (withdrawn): An oligonucleotide having the nucleotide sequence complementary to a sequence of claim 1.

Claim 50 (withdrawn): A composition comprising the oligonucleotide according to claim 49 and a physiologically acceptable carrier.

Claim 51 (withdrawn): A method of treating a neoplastic state in an individual syndrome in an individual in need of such treatment, comprising the

step of administering to said individual an effective dose of the oligonucleotide of claim 49.

Claim 52 (withdrawn): The method of claim 51, wherein said neoplastic state is selected from the group consisting of ovarian cancer, breast cancer, lung cancer, colon cancer, prostate cancer and other cancers in which TADG-15 is overexpressed.